

**U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM**

SCIENTIFIC NAME: *Calamagrostis expansa*

COMMON NAME: No common name

LEAD REGION: Region 1

INFORMATION CURRENT AS OF: April 2010

STATUS/ACTION

☐ Species assessment - determined we do not have sufficient information on file to support a proposal to list the species and, therefore, it was not elevated to Candidate status

☐ New candidate

☒ Continuing candidate

☐ Non-petitioned

☒ Petitioned - Date petition received: May 11, 2004

☐ 90-day positive - FR date:

☒ 12-month warranted but precluded - FR date: May 11, 2005

☐ Did the petition request a reclassification of a listed species?

FOR PETITIONED CANDIDATE SPECIES:

a. Is listing warranted (if yes, see summary of threats below)? Yes

b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes

c. If the answer to a. and b. is "yes", provide an explanation of why the action is precluded.

Higher priority listing actions, including court-approved settlements, court-ordered and statutory deadlines for petition findings and listing determinations, emergency listing determinations, and responses to litigation, continue to preclude the proposed and final listing rules for the species. We continue to monitor populations and will change its status or implement an emergency listing if necessary. The "Progress on Revising the Lists" section of the current CNOR (<http://endangered.fws.gov/>) provides information on listing actions taken during the last 12 months.

☐ Listing priority change

Former LP: ____

New LP: ____

Date when the species first became a Candidate (as currently defined):

October 25, 1999

☐ Candidate removal: Former LP: ____

☐ A – Taxon is more abundant or widespread than previously believed or not subject to

the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

- ___ U – Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.
- ___ F – Range is no longer a U.S. territory.
- ___ I – Insufficient information exists on biological vulnerability and threats to support listing.
- ___ M – Taxon mistakenly included in past notice of review.
- ___ N – Taxon does not meet the Act’s definition of “species.”
- ___ X – Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Flowering plants, Poaceae (Grass family)

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Hawaii, islands of Maui and Hawaii

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Hawaii, islands of Maui and Hawaii

LAND OWNERSHIP: Over half of the statewide population of *Calamagrostis expansa* occurs on State land on the island of Hawaii (Puu o Umi Natural Area Reserve (NAR), Kohala Forest Reserve (FR), and Upper Waiakea FR). The remaining populations are located on the island of Maui and are divided between Federal (Haleakala National Park), State (West Maui NAR, Hana FR), private (Puu Kukui), and a small portion of county land (Board of Water Supply).

LEAD REGION CONTACT: Linda Belluomini, (503) 231- 6283, linda_belluomini @fws.gov

LEAD FIELD OFFICE CONTACT: Pacific Islands Fish and Wildlife Office, Christa Russell, 808-792-9400, christa_russell@fws.gov

BIOLOGICAL INFORMATION

Species Description

Calamagrostis expansa is a robust, short-rhizomatous perennial with erect or decumbent culms, 1.6 to 6.6 feet (ft) (5 to 20 decimeters) tall and 0.16 to 0.3 inches (in) (4 to 8 millimeters (mm)) in diameter. Sheaths are 0.14 to 0.16 in (3.5 to 4 mm) long and overlap closely along the middle of the culm. Leaf blades are flat to involute, 6 to 8 in (15 to 20 centimeters (cm)) long, 0.4 to 1.2 in (1 to 3 cm) wide, with the uppermost leaf blade reduced and hard-pointed. Inflorescences are paniculate, oblong, 6 to 11.8 in (15 to 30 cm) long and devoid of spikelets on the lower half of the branch. The 0.06 to 0.08 in (1.5 to 2 mm) rachilla is obscured by long, whitish yellow, silky hairs. The fruit is pale brown, ovoid, 0.08 to 0.1 in (2 to 2.5 mm) long, slightly grooved ventrally, with an apiculate apex (O’Connor 1999, p. 1,509).

Taxonomy

Calamagrostis expansa was described by A.S. Hitchcock (1922, p. 148). This species is

recognized as a distinct taxon in O'Connor (1999, p. 1,509) and in Wagner and Herbst (2003, p. 59), the most recently accepted Hawaiian plant taxonomy.

Habitat/Life History

Calamagrostis expansa is found in wet forest, open bogs, and bog margins. On Maui, *C. expansa* is found with the associated species *Carex echinata* (no common name (NCN)), *Cheirodendron trigynum* (olapa), *Deschampsia nubigena* (hairgrass), *Dicranopteris linearis* (uluhe), *Dryopteris* spp. (laukahi), *Dubautia* spp. (naenae), *Leptecophylla tameiameia* (pukiaawe), *Lysimachia* spp. (NCN), *Machaerina* spp. (uki), *Metrosideros polymorpha* (ohia), *Oreobolus furcatus* (NCN), *Rhynchospora* spp. (kuolohia), *Sadleria* spp. (amaau), *Vaccinium* spp. (ohelo), and various ferns, at elevations between 4,000 and 7,500 ft (1,219 and 2,286 m). On the island of Hawaii, *C. expansa* is found in *Metrosideros polymorpha*-*Machaerina angustifolia* (ohia-uki) montane bogs with the associated species *Cheirodendron trigynum*, *Machaerina angustifolia*, *Metrosideros polymorpha* var. *incana*, and *Rhynchospora* spp., at elevations between 4,200 and 4,442 ft (1,280 and 1,354 m) (O'Connor 1999, p. 1,509; Hawaii Biodiversity and Mapping Program (HBMP) 2008).

Historical Range

Historically rare, *Calamagrostis expansa* was reported from wet forest and bogs on Maui (O'Connor 1999, p. 1,509). Discovered on the island of Hawaii in 1995, the historical status of the species on this island is unknown (HBMP 2008).

Current Range/Distribution

Currently, *Calamagrostis expansa* is found on the islands of Maui and Hawaii, in wet forest, open bogs, and bog margins (HBMP 2008).

Population Estimates/Status

This species is known from 13 populations numbering fewer than 750 individuals. On the island of Maui, there are 2 populations totaling approximately 100 individuals in the west Maui mountains at Eke Crater and from Honokohau to Kahoolewa, and 7 populations of about 200 individuals in the East Maui mountains, at Waikamoi Preserve, along the southern boundary of Hanawi NAR and Kalapawili ridge, along the southern rim of Kipahulu Valley, and at New Greensword Bog (H. Oppenheimer, Plant Extinction Prevention Program, pers. comm. 2010; K. Fay, The Nature Conservancy, pers. comm. 2010; P. Welton, National Park Service, pers. comms. 2008, 2010; K. Wood, National Tropical Botanical Garden, in litt. 2005). On the island of Hawaii there are 3 populations in the Kohala FR and Puu o Umi NAR in the Kohala mountains, totaling approximately 400 individuals (HBMP 2008). There is one small population in the Upper Waiakea FR near Hawaii Volcanoes National Park, with six individuals observed in 2006 (L. Perry, Hawaii Division of Forestry and Wildlife (DOFAW), pers. comm. 2006; HBMP 2008).

THREATS

A. The present or threatened destruction, modification, or curtailment of its habitat or range. *Calamagrostis expansa* is highly and imminently threatened by feral pigs (*Sus scrofa*) on Maui and the island of Hawaii. Evidence of the activities of feral pigs has been reported in areas

where *C. expansa* populations are known to occur in the east Maui mountains and also in the Kohala mountain and Upper Waiakea populations on the island of Hawaii (U.S. Fish and Wildlife Service (Service) 1995; R. Hobdy, retired DOFAW, pers. comm. 1996; A. Medeiros, U.S. Geological Survey, Biological Resources Discipline (USGS-BRD), pers. comm. 1996; S. Perlman, National Tropical Botanical Garden (NTBG), pers. comm. 1996; K. Wood, NTBG, pers. comm. 1996; L. Perry, pers. comm. 2006; HBMP 2008).

Pigs of Asian ancestry were introduced to Hawaii by the Polynesians, and the Eurasian type was introduced to Hawaii by Cook in 1778, with many other introductions thereafter (Tomich 1986, p. 121). Some pigs raised as food escaped into the forests of Hawaii, Kauai, Oahu, Molokai, Maui, and Niihau, and are now managed as a game animal by the State to optimize hunting opportunities (Tomich 1986, p. 125; State of Hawaii 2001). In a study conducted in the 1980s on feral pig populations in the Kipahulu Valley on Maui, the deleterious effects of feral pig rooting on native forest ecosystems was documented (Diong 1982, 408 pp.). Kipahulu Valley consists of a diverse composition of native ecosystems, from near sea level to alpine, and forest types ranging from mesic to wet, *Acacia koa* and/or *Metrosideros polymorpha*. Rooting by feral pigs was observed to be related to the search for earthworms, with rooting depths averaging 8 in (20 cm), greatly disrupting the leaf litter and topsoil layers, and contributing to erosion and changes in ground topography (Diong 1982, pp. 143-150). The feeding habits of pigs were observed to create seed beds, enabling the establishment and spread of weedy species such as *Psidium cattleianum* (strawberry guava) (Diong 1982, pp. 164-165). The study concluded that all aspects of the food habits of pigs are damaging to the structure and function of the Hawaiian forest ecosystem (Diong 1982, pp. 166-167).

Hawaiian ecosystems, having evolved without hoofed mammals, are susceptible to large-scale disturbance by pigs and other introduced ungulates (Loope *et al.* 1991, p. 3). Because of demonstrated habitat modifications by feral pigs, such as destruction of native plants, disruption of topsoil leading to erosion, and establishment and spread of nonnative plants, the Service believes they are threats to *Calamagrostis expansa*.

B. Overutilization for commercial, recreational, scientific, or educational purposes.

None known.

C. Disease or predation.

Calamagrostis expansa is potentially threatened by predation by feral pigs in the east Maui mountains populations and the Kohala mountain and Upper Waiakea populations on the island of Hawaii (R. Hobdy, pers. comm. 1996; A. Medeiros, pers. comm. 1996; S. Perlman, pers. comm. 1996; K. Wood, pers. comm. 1996; L. Perry, pers. comm. 2006; HBMP 2008). Browsing by ungulates has been observed on many native plant species, including common and rare or endangered species (Cuddihy and Stone 1990; Loope *et al.* 1991). Because Hawaii's native plants evolved without any browsing or grazing mammals present, many lost natural defenses to such impacts (Merlin and Juvik, p. 597). Browsing by ungulates has been observed on many other native species, including common and rare or even endangered species (Cuddihy and Stone 1990, pp. 63-67).

Pigs are omnivorous in their diet. In the study described above on feral pig populations in the Kipahulu Valley, pigs were observed browsing on young shoots, leaves and fronds of a wide variety plants, of which over 85 percent were endemic species (Diong 1982, p. 138). A stomach content analysis showed that the pigs' food sources consisted of native plants, 60 percent of which were tree ferns (*Cibotium* spp.), alternating with strawberry guava when it was available. Pigs were observed to fell plants and remove the bark of *Clermontia*, *Cibotium*, *Coprosma*, *Psychotria*, and *Hedyotis* species (herbaceous and woody plants), with larger trees killed over a few months of repeated feeding (Diong 1982, pp. 138, 144).

D. The inadequacy of existing regulatory mechanisms.

Calamagrostis expansa is not currently protected under Hawaii's endangered species law (HRS, Sect. 195-D) or the Federal Endangered Species Act (16 U.S.C. §1531-1544).

Pigs are managed in Hawaii as game animals, but many populate inaccessible areas where hunting is difficult, if not impossible, and therefore has little effect on their numbers (Hawaii Heritage Program 1990, p. 3). Pig hunting is allowed year-round, or during certain months, depending on the area (Hawaii Department of Land and Natural Resources 1999, 2003) however, public hunting does not adequately control the number of ungulates to eliminate this threat to native plant species.

E. Other natural or manmade factors affecting its continued existence.

Calamagrostis expansa is threatened by nonnative plant species that degrade and destroy habitat and outcompete native plants (HBMP 2008; R. Hobdy, pers. comm. 1996; A. Medeiros, pers. comm. 1996; S. Perlman, pers. comm. 1996; K. Wood, pers. comm. 1996). The nonnative plant species that are the greatest threats to *C. expansa* are: *Juncus planifolius* (bog rush), *Juncus effusus* (Japanese mat rush), and *Tibouchina herbacea* (glorybush) in the west Maui mountains; *Holcus lanatus* (common velvetgrass) and *Ageratina adenophora* (Maui pamakani), *Prunella vulgaris* (selfheal), and *Sacciolepis indica* (glenwood grass) in the east Maui mountains; and *Tibouchina herbacea* (glorybush), *Juncus planifolius*, *Juncus ensifolius* (dagger-leaved rush), and *Polygonum punctatum* (water smartweed) in the Kohala mountains (HBMP 2008; H. Oppenheimer, pers. comm. 2007).

Ageratina adenophora is native to tropical America, and has naturalized in dry to wet forest on the islands of Oahu, Molokai, Lanai, and Maui (Wagner *et al.* 1999, pp. 254-255). *Ageratina adenophora* is a shrub 3 to 5 ft (1 to 1.5 m) tall with trailing branches that root on contact with soil. It forms dense mats which prevent regeneration of native plants (Anderson *et al.* 1992, p. 315; University of California 2006). It is considered a serious weed in agriculture, especially in rangeland, because it often replaces more desirable vegetation or native species, and is fatally toxic to horses and most livestock. The eupatorium gall fly, *Procecidochares utilis*, was introduced to Hawaii in 1944 for control of Maui pamakani, and has been successful in suppression of most of the infestations (Bess and Haramoto 1959, p. 248).

Holcus lanatus is native to Europe and naturalized in Hawaii where it occurs on poor, moist soils (O'Connor 1999, p. 1,551). Common velvetgrass is an aggressive weed, growing rapidly from basal shoots or prolific seed and therefore can become dominant if not controlled. Common velvetgrass gradually forces other plants out, reducing species diversity. Allelopathy may also

play a role in the dominance of common velvetgrass over other grasses (Remison and Snaydon 1980, p. 183). The most effective control measure is physical removal by hand-pulling or hoeing. No safe, effective means of biocontrol have been found (Pitcher and Russo 2005, pp. 1-6).

Juncus effusus is a perennial herb widely distributed in temperate regions and naturalized in Hawaii in ponds, streams, and open boggy sites. It was brought to Hawaii as a source of matting material, but grew too slowly to be of commercial value. This plant spreads by seeds and rhizomes, and forms dense mats that crowd out native plants (Coffey 1999, p. 1,453).

Juncus ensifolius, a perennial herb native to the western United States, is naturalized in standing water of marshy areas in Hawaii (Coffey 1999, p. 1,453). This weedy colonizer can tolerate environmental stress and outcompete native species (Pojar and Mackinnon 1994).

Juncus planifolius is a perennial rush which has naturalized in moist, open, disturbed depressions on margins of forests and in bogs on Kauai, Oahu, Molokai, Maui, and Hawaii (Coffey 1999, pp. 1,453-1,454). This species forms dense mats and has the potential of displacing natives by preventing establishment of native seedlings (Medeiros *et al.* 1991, pp. 22-23).

Polygonum punctatum is a perennial herb native to North and South America and the West Indies that was introduced to Hawaii in 1909. This taxon established in Hawaii along streams, wet areas, and in disturbed forest (Wagner *et al.* 1999, p. 1,064). It grows in wetter areas or in shallow water, and has both floating and terrestrial forms. It can grow up to 30 in (76 cm) high, and can carpet large areas with its wide leaves. The achenes are spread by waterbirds, and it also spreads by rooting at the nodes. Handling of this vegetation can cause stings and burns (Earth Cards 2006; USGS 2006).

Prunella vulgaris is a perennial herb in the mint family, native to North and Central America, temperate Europe, and Asia. In Hawaii, selfheal is naturalized in mesic or wet forest on Molokai, Maui, and Hawaii (Wagner *et al.* 1999, pp. 828-829). Selfheal is a low-growing plant that spreads out well and will colonize an area with its creeping root stocks and by seed (The Green Web 2006). This herb is used medicinally in China and extracts have demonstrated anti-viral properties (Sahelian 2006).

Sacciolepis indica is a grass native to the Paleotropics, and naturalized in Hawaii in open, wet areas and along trails (O'Connor 1999, p. 1,589). This slender, annual grass invades disturbed and open areas in wet habitats. The seeds are dispersed by sticking to animal fur. Its response to fire is unknown. There is a large infestation moving into Wahiawa Bog, Kauai (University of Hawaii 1998). A study conducted in a bog at Haleakala National Park showed that within six years of an area being rooted and denuded by pigs, the cover of *Sacciolepis indica* increased from four percent to 33 percent (Medeiros *et al.* 1991, p. 11). This species has not been evaluated for biological control.

Tibouchina herbacea is a member of the Melastomataceae family and is native to southern Brazil, Uruguay, and Paraguay. In Hawaii, it is naturalized and abundant in disturbed mesic to wet forest on the islands of Hawaii, Maui, and Lanai (Wagner *et al.* 1999, p. 915). All members of

this genus are legally declared noxious in the state of Hawaii (Hawaii Administrative Rules, Title 4, Subtitle 6, Chapter 68). Research is ongoing for biological controls of this species (Smith 1998; The Nature Conservancy 2003, p. 8).

The original native flora of Hawaii consisted of about 1,400 species, nearly 90 percent of which were endemic. Of the current total native and naturalized Hawaiian flora of 1,817 taxa, 47 percent are introduced species, and nearly 100 species are pests (Smith 1985, p. 180; Wagner *et al.* 1999, p. 45). Confirmed personal observations (HBMP 2008) and several studies (Cuddihy and Stone 1990, p. 74; Wood and Perlman 1997, p. 18; Robichaux *et al.* 1998, p. 4) indicate nonnative plant species may outcompete native plants similar to *Calamagrostis expansa*. Competition may be for space, light, water, or nutrients, or there may be a chemical produced that inhibits growth of other plants (Smith 1985, p. 227-230; Cuddihy and Stone 1990, p. 74). In addition, nonnative pest plants found in habitat similar to that of this species have been shown to make the habitat less suitable for native species (Smith 1985, pp. 240-241; Loope and Medeiros 1992, pp. 7-8; Medeiros *et al.* 1992, p. 30; Ellshoff *et al.* 1995, pp. ii, 3-4; Meyer and Florence 1996, p. 778; Medeiros *et al.* 1997, pp. 23-24; Loope *et al.* 2004, p. 1,472). In particular, alien pest plant species degrade habitat by modifying availability of light, altering soil-water regimes, modifying nutrient cycling, or altering fire characteristics of native plant communities (Smith 1985, pp. 227-230; Cuddihy and Stone 1990, p. 74; Vitousek *et al.* 1997, pp. 6-10). Because of demonstrated habitat modification and resource competition by nonnative plant species in habitat similar to that of *C. expansa*, the Service believes nonnative plant species are a threat to this species.

CONSERVATION MEASURES PLANNED OR IMPLEMENTED

All of the known populations of *Calamagrostis expansa* on the island of Maui occur in managed areas. Pig exclusion fences have been constructed and control of nonnative weeds is ongoing within the exclosures at Kahakuloa, Waikamoi, and Hanawi where populations of *C. expansa* exist (H. Oppenheimer, pers. comm. 2007; Maui Pineapple Company, Ltd. 1999, pp. 4-7; Service 1991; Service 1995; University of Hawaii 2005).

On the island of Hawaii the State intends to fence a new population of six individuals discovered in the Upper Waiakea FR (L. Perry, pers. comm. 2006). This species is represented in an ex situ collection at the Volcano Rare Plant Facility (VRPF) (P. Moriyasu, VRPF, pers. comm. 2009).

SUMMARY OF THREATS

Based on our evaluation of habitat degradation and loss by feral pigs and by competition with nonnative plants, we conclude there is sufficient information to develop a proposed listing rule for this species due to the present and threatened destruction, modification, or curtailment of its habitat and range, and the displacement of individuals of *Calamagrostis expansa* due to competition with nonnative plants for space, nutrients, water, air, and light. Predation by feral pigs is a potential threat to *C. expansa*. We find that this species is warranted for listing throughout all its range, and, therefore, find that it is unnecessary to analyze whether it is threatened or endangered in a significant portion of its range.

RECOMMENDED CONSERVATION MEASURES

- Protect all individuals from feral pigs

- Control nonnative plants
- Conduct field surveys in suitable habitat
- Reintroduce individuals into suitable habitat within historic range that is being managed for known threats to this species
- Propagate and maintain genetic stock

LISTING PRIORITY

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2*
	Non-imminent	Subspecies/population	3
		Monotypic genus	4
		Species	5
Moderate to Low	Imminent	Subspecies/population	6
		Monotypic genus	7
		Species	8
	Non-imminent	Subspecies/population	9
		Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude:

This species is highly threatened by feral pigs that degrade and destroy habitat, and by nonnative plants that compete for light and nutrients. Threats to the wet forest and bog habitat of *Calamagrostis expansa*, and to individuals of this species, occur throughout most of its range that are unmanaged, and are expected to continue or increase without control or eradication. Feral pigs have been fenced out of the east Maui populations of *C. expansa* within Haleakala National Park and Waikamoi Preserve. Nonnative plant control is ongoing within these managed areas; however, these managed areas protect only those plants on Maui; none of the plants on the island of Hawaii (approximately 350 individuals) are protected. All fences must be continually maintained to prevent incursion by feral pigs. Long-term monitoring and management will be required to maintain threat-free areas.

Immediacy of Threats:

Habitat degradation by feral pigs and competition with nonnative plants are imminent threats because they are ongoing. Possible predation by feral ungulates is considered non-imminent.

Yes Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed?

Is Emergency Listing Warranted? No. *Calamagrostis expansa* is currently known from 13 populations totaling approximately 750 individuals. The species is threatened by habitat destruction and possible predation by feral pigs and competition with nonnative plants in unmanaged areas. The species does not appear to be appropriate for emergency listing at this time because the immediacy of the threats is not so great as to imperil a significant proportion of the taxon within the time frame of the routine listing process. In addition, individuals of *C. expansa* on Maui will benefit from conservation actions initiated by the State Division of Forestry and Wildlife, The Nature Conservancy of Hawaii, private landowners, and the West and East Maui Watershed Partnerships, all funded in part by the Service. If it becomes apparent that the routine listing process is not sufficient to prevent large losses that may result in this species' extinction, then the emergency rule process for this species will be initiated. We will continue to monitor the status of *C. expansa* as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures.

DESCRIPTION OF MONITORING

Much of the information in this form is based on the results of a meeting of 20 botanical experts held by the Center for Plant Conservation in December of 1995, and was updated with information from a survey conducted by the National Tropical Botanical Garden in late 1995, and by personal communication with Robert Hobdy (formerly with DOFAW) in 1996; Arthur Medeiros of USGS-BRD in 1996; and Steve Perlman and Ken Wood of NTBG in 1996. We incorporated additional new information on this species from information in our files and the most recent supplement to the *Manual of Flowering Plants of Hawaii* (Wagner and Herbst 2003). In 2004, the Pacific Islands Office contacted the following species experts: Robert Hobdy; Joel Lau of the Hawaii Natural Heritage Program; Arthur Medeiros; Hank Oppenheimer, Maui Land and Pineapple Company; and Steve Perlman and Ken Wood, and no new information was provided. In 2006, confirmation of the status of *Calamagrostis expansa* was provided by Hank Oppenheimer and Lyman Perry (DOFAW). In 2007 and 2008, new status and range information was provided by Hank Oppenheimer of the Plant Extinction Prevention Program. Patti Welton of the National Park Service, Haleakala National Park, provided information in 2008. In 2009 we received new information from Patrice Moriyasu, Volcano Rare Plant Facility. In 2010, we contacted the species experts listed below, and received new information from Kerri Fay (TNC) and Hank Oppenheimer (PEP).

List all experts contacted:

Name	Date	Affiliation
Agorastos, Nick	02/09/10	Division of Forestry and Wildlife
Anderson, Stephen	02/09/10	National Park Service, Haleakala NP, Maui
Aruch, Sam	02/09/10	private contractor
Bakutis, Ane	02/09/10	Plant Extinction Prevention Program, Molokai
Ball, Donna	02/09/10	U.S. FWS, Partners Program, Hawaii Island
Beavers, Sally	02/09/10	National Park Service, Hawaii Island

Bily, Pat	02/09/10	The Nature Conservancy, Maui
Bio, Kealii	02/09/10	Plant Extinction Prevention Program, Hawaii Island
Brosius, Chris	02/09/10	West Maui Mountains Watershed Partnership
Caraway, Vickie	02/09/10	Hawaii Division of Forestry and Wildlife, Oahu
Ching, Susan	02/09/10	Plant Extinction Prevention Program, Oahu
Cole, Colleen	02/09/10	Three Mountain Alliance
Conry, Paul	02/09/10	Hawaii Department of Land and Natural Resources
Coordinator	02/09/10	East Maui Watershed Partnership
Duvall, Fern	02/09/10	Hawaii Division of Forestry and Wildlife, Maui
Fay, Kerri	02/09/10	The Nature Conservancy, Maui
Garnett, Bill	02/09/10	National Park Service, Kalaupapa, Molokai
Giffin, Jon	02/09/10	The Nature Conservancy, Hawaii Island
Haus, Bill	02/09/10	National Park Service, Haleakala NP, Maui
Higashino, Jennifer	02/09/10	U.S. FWS, Maui
Imada, Clyde	02/09/10	Bishop Museum
Jacobi, Jim	02/09/10	U.S.G.S., Biological Resources Division
Kawakami, Galen	02/09/10	Division of Forestry and Wildlife, Kauai
Kawelo, Kapua	02/09/10	U.S. Army, Environmental Division
Kier, Matt	02/09/10	U.S. Army, Environmental Division
Kiyabu, Brian	02/09/10	Amy Greenwell Botanical Garden
Kraus, Jim	02/09/10	U.S. FWS, Hakalau NWR
Medeiros, Arthur	02/09/10	U.S. Geological Survey
Misaki, Ed	02/09/10	The Nature Conservancy, Molokai
Moriyasu, Patty	02/09/10	Volcano Rare Plant Facility, Hawaii Island
Moses, Wailana	02/09/10	The Nature Conservancy, Molokai
Nakai, Glynnis	02/09/10	U.S. FWS, Refuges, Maui
Oppenheimer, Hank	02/09/10	Plant Extinction Prevention Program, Maui Nui
Palomino, Anna	02/09/10	Olinda Rare Plant Nursery, Maui
Palumbo, David	02/09/10	National Park Service, Haleakala NP, Maui
Pepi, Vanessa	02/09/10	U.S. Navy, Environmental Contractor
Perlman, Steve	02/09/10	National Tropical Botanical Garden
Perry, Lyman	02/09/10	Division of Forestry and Wildlife, Hawaii Island
Plunkett, Bryan	02/09/10	Lanai Forest and Watershed Partnership
Pratt, Linda	02/09/10	U.S.G.S., Biological Resources Division
Purell, Melora	02/09/10	Kohala Watershed Partnership
Seidman, Stephanie	02/09/10	Maui Nui Botanical Garden
Shishido, Glenn	02/09/10	Division of Forestry and Wildlife, Maui
Silbernagle, Mike	02/09/10	U.S. FWS, Refuges, Oahu
Smith, Miranda	02/09/10	Koolau Mountains Watershed Partnership
Starr, Forest	02/09/10	U.S. Geological Survey
Tanaka, Daniel	02/09/10	Puu Kukui Watershed Preserve
Ward, Joe	02/09/10	Puu Kukui Watershed Preserve
Welton, Patti	02/09/10	National Park Service, Haleakala NP, Maui
Wood, Ken	02/09/10	National Tropical Botanical Garden
Wysong, Michael	02/09/10	DLNR Natural Area Reserves, Kauai

The Hawaii Biodiversity and Mapping Program identified this species as critically imperiled (HBMP 2006). Based on the International Union for Conservation of Nature and Natural Resources Red List of Threatened Species, *Calamagrostis expansa* is recognized as Endangered (facing a very high risk of extinction in the wild) (Bruegmann and Caraway 2003).

Calamagrostis expansa is not included in the list of species of greatest conservation need in Hawaii's 2005 Comprehensive Wildlife Conservation Strategy (Mitchell *et al.* 2005, 722 pp.).

COORDINATION WITH STATES

On February 11, 2010, we provided the Hawaii Division of Forestry and Wildlife with copies of our most recent candidate assessments for their review and comment. No additional information or comments were received.

LITERATURE CITED

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APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve:

Acting Cecily A. Bohan 5/18/10
Regional Director, Region 1, Fish and Wildlife Service Date

Ronan W. Gould
ACTING
Director, Fish and Wildlife Service October 22, 2010

Concur:

Do not concur: _____ Date: _____
Director, Fish and Wildlife Service

Director's Remarks:

Date of annual review: _____ Date: April 5, 2010
Conducted by: Cheryl Phillipson, Pacific Islands FWO
Biologist, Prelisting and Listing Program

Comments:

PIFWO Review

Reviewed by: Christa Russell Date: April 21, 2010
Prelisting and Listing Program Coordinator

Marilet Zablan Date: April 26, 2010
Assistant Field Supervisor, Endangered Species Division

Gina Shultz Date: April 30, 2010
Acting Field Supervisor